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(54) **URINE COLLECTION DEVICES HAVING A RELATIVELY WIDE PORTION AND AN ELONGATED PORTION AND RELATED METHODS**

(71) Applicant: **PureWick Corporation**, El Cajon, CA (US)

(72) Inventors: **James David Hughett, Sr.**, Conyers, GA (US); **Rodrigo Fernandez**, Loganville, GA (US); **Melissa Young Joyner**, Stone Mountain, GA (US); **Wanfei Yang**, Decatur, GA (US); **Larry Dean Alder**, Newborn, GA (US); **Kuilin Lai**, Watkinsville, GA (US); **Nathaniel Barnes**, Covington, GA (US)

(73) Assignee: **PureWick Corporation**, Covington, GA (US)

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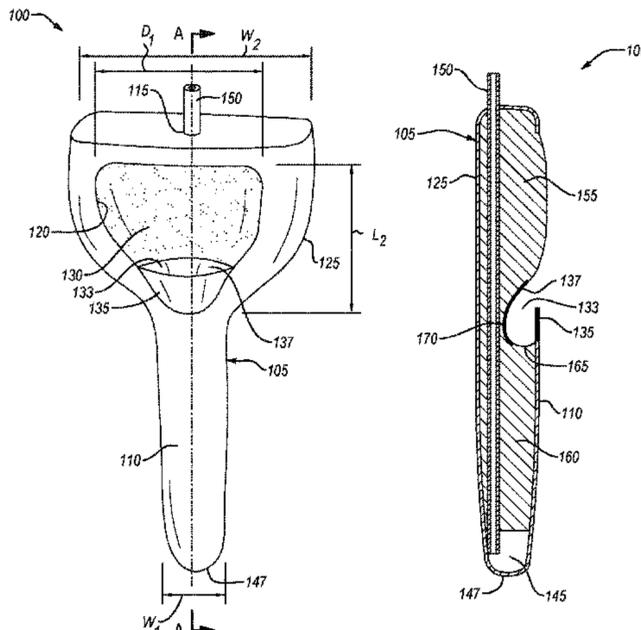
*Primary Examiner* — Susan S Su  
*Assistant Examiner* — Erin A Kim

(74) *Attorney, Agent, or Firm* — Dorsey & Whitney LLP

(57) **ABSTRACT**

Examples relate to devices, systems, and methods for fluid collection such as urine. The urine collection device includes a fluid impermeable barrier and a fluid permeable body. The fluid impermeable barrier at least partially defines a chamber. The fluid impermeable barrier includes at least one elongated portion having a first width and distal to the aperture and a second portion having a second width greater than the first width. The second portion at least partially

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defines an opening in the fluid impermeable barrier, and the opening has a maximum lateral dimension greater than the first width of the elongated portion. The fluid permeable body is configured to wick fluid away from the opening into the at least one elongated portion.

**31 Claims, 11 Drawing Sheets**

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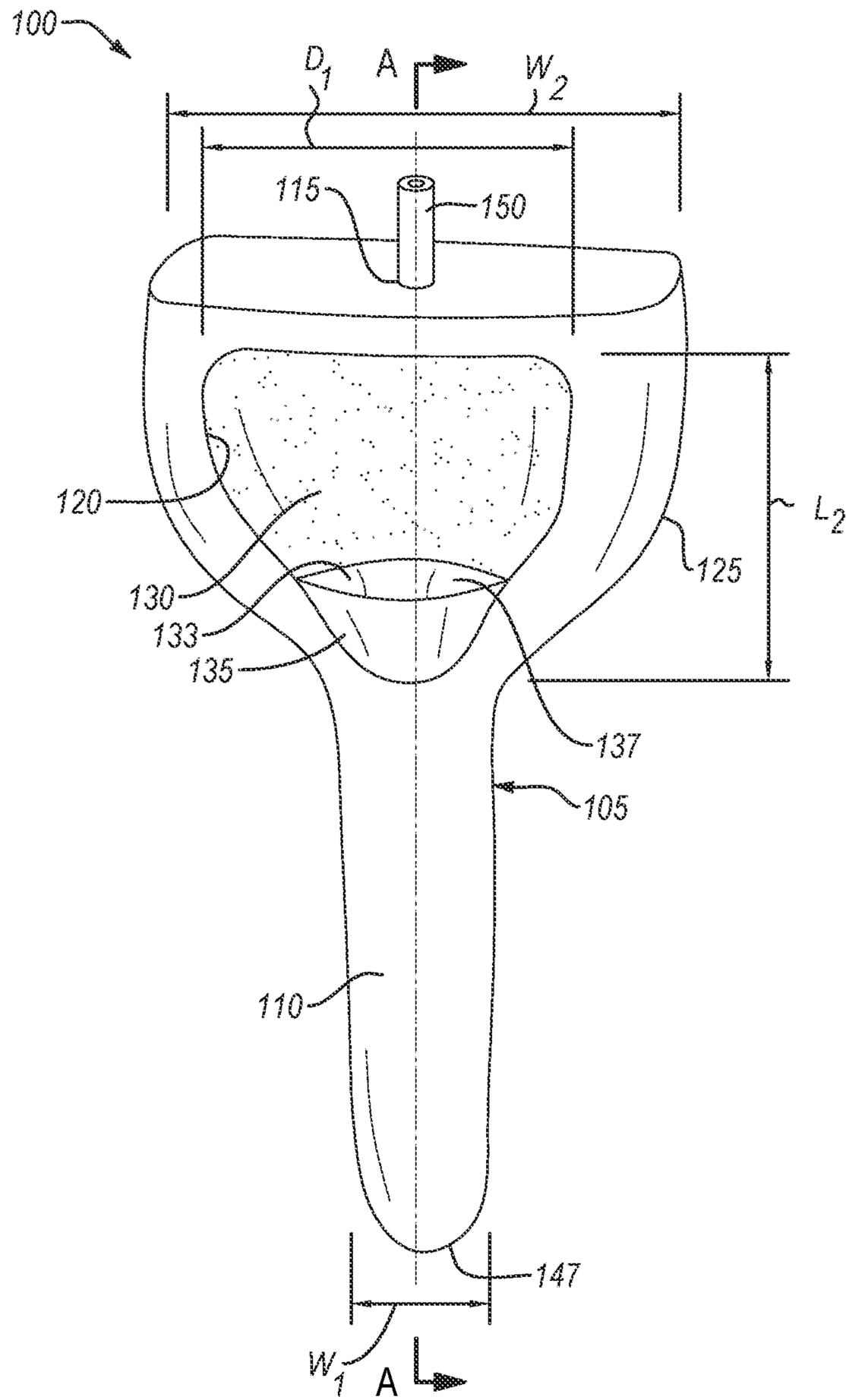


FIG.1A

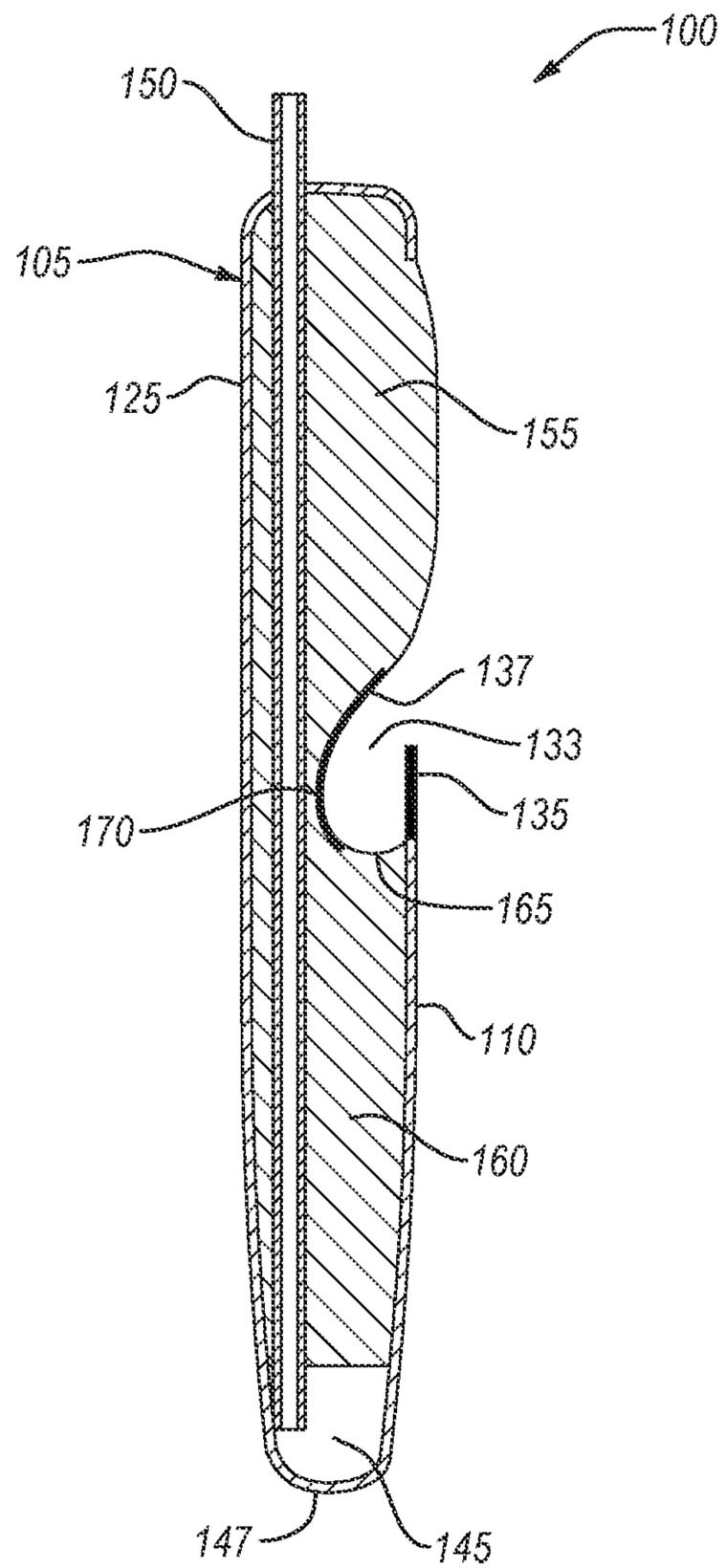


FIG. 1B

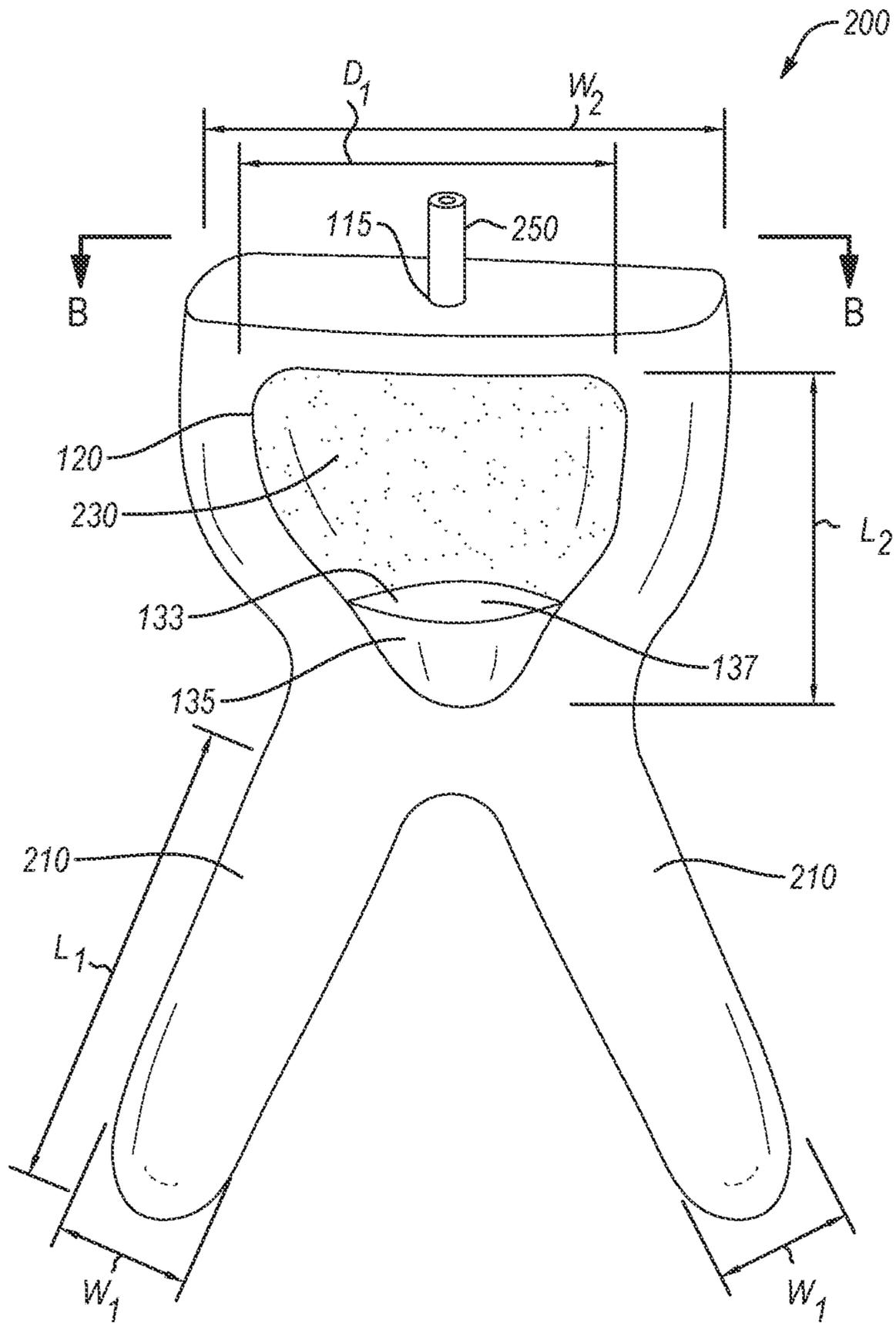


FIG.2A

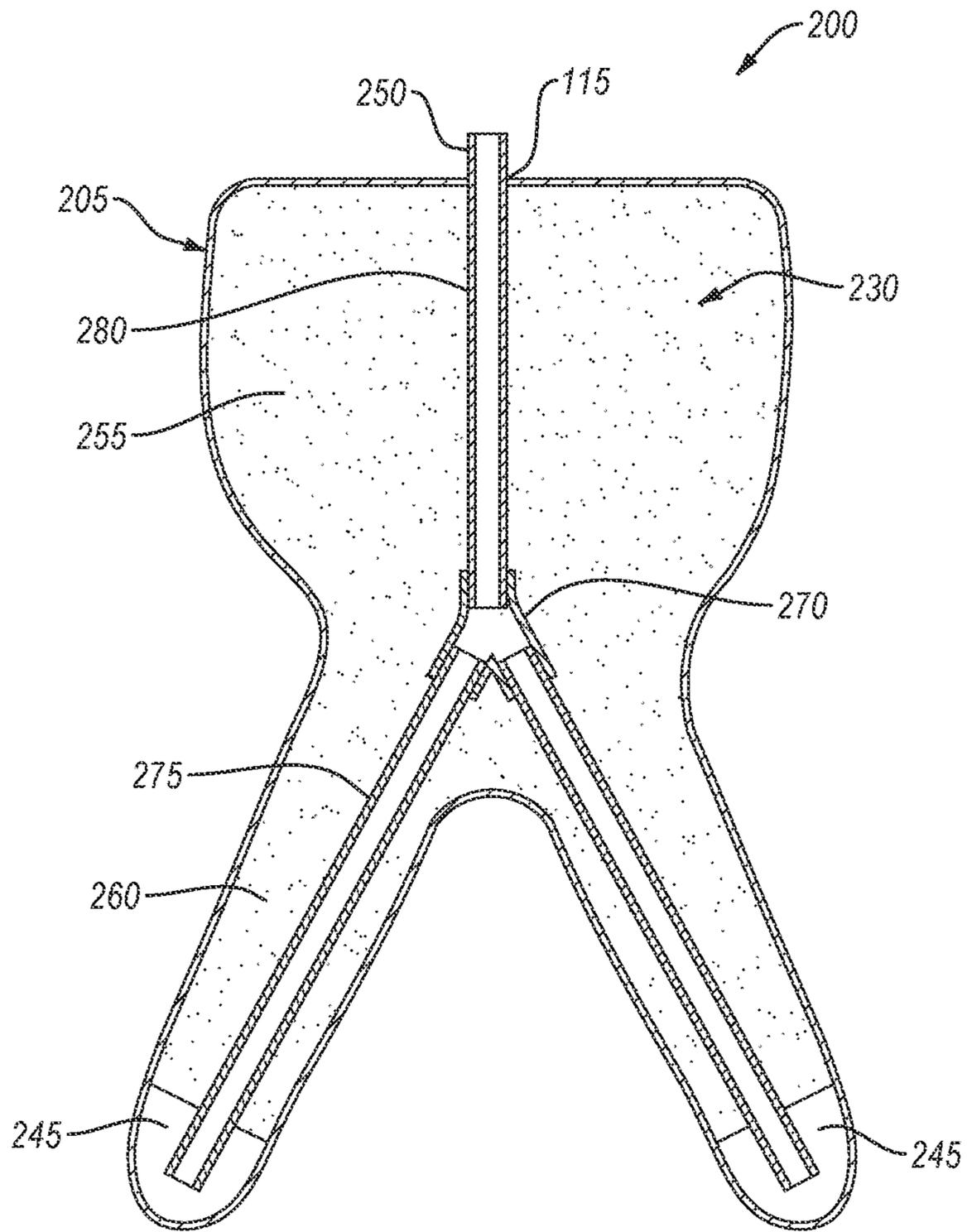


FIG.2B

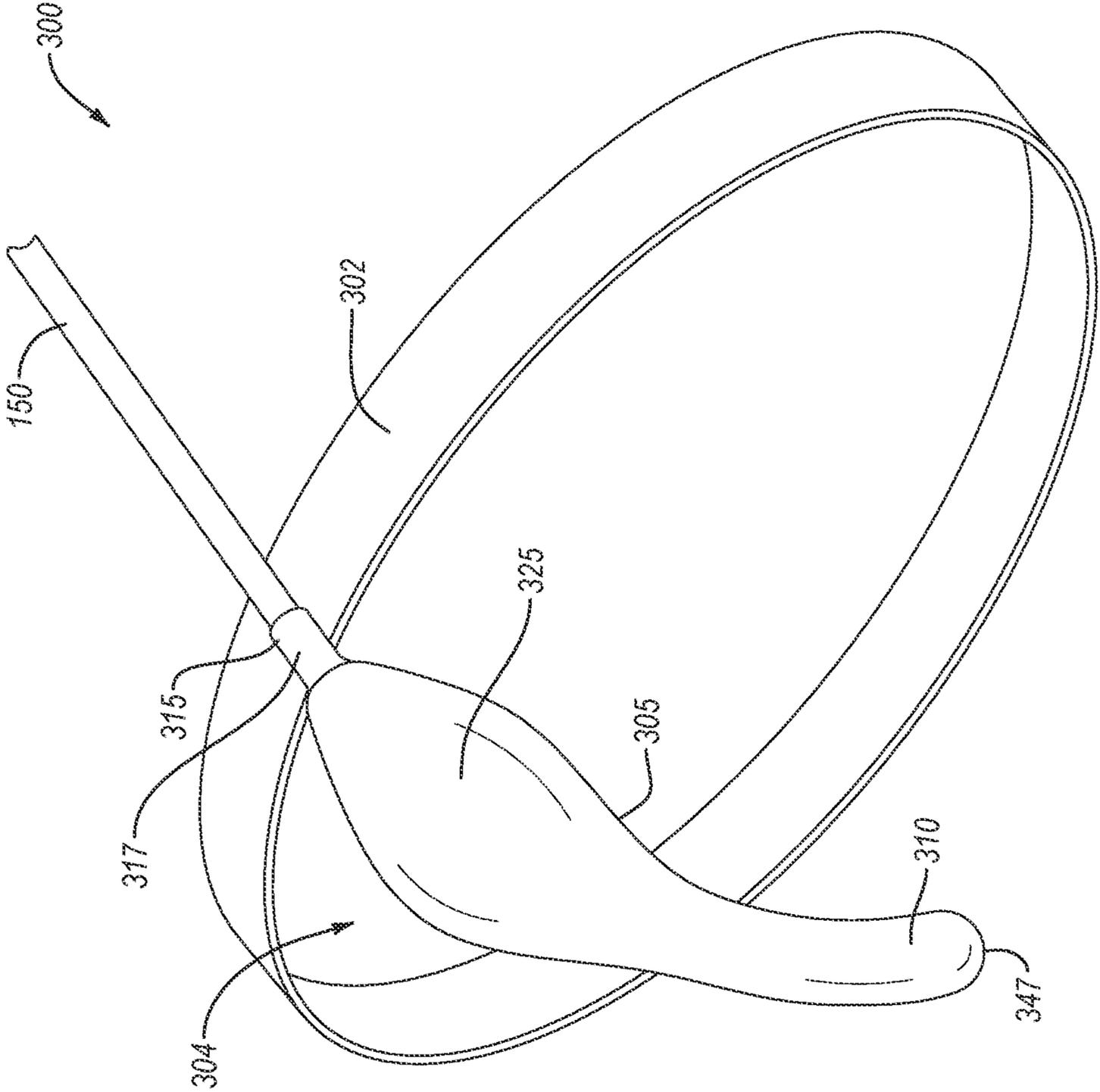


FIG. 3A

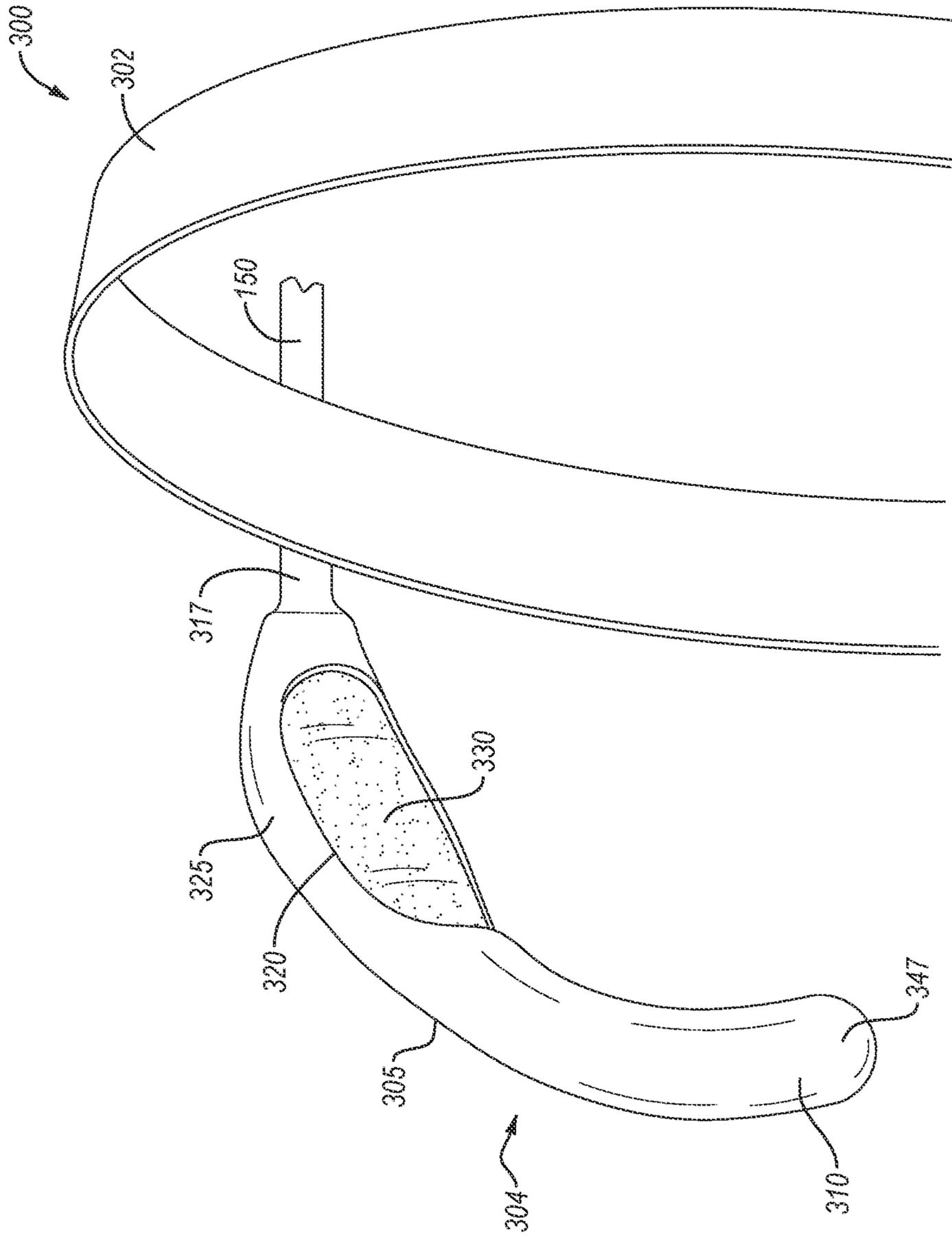


FIG.3B

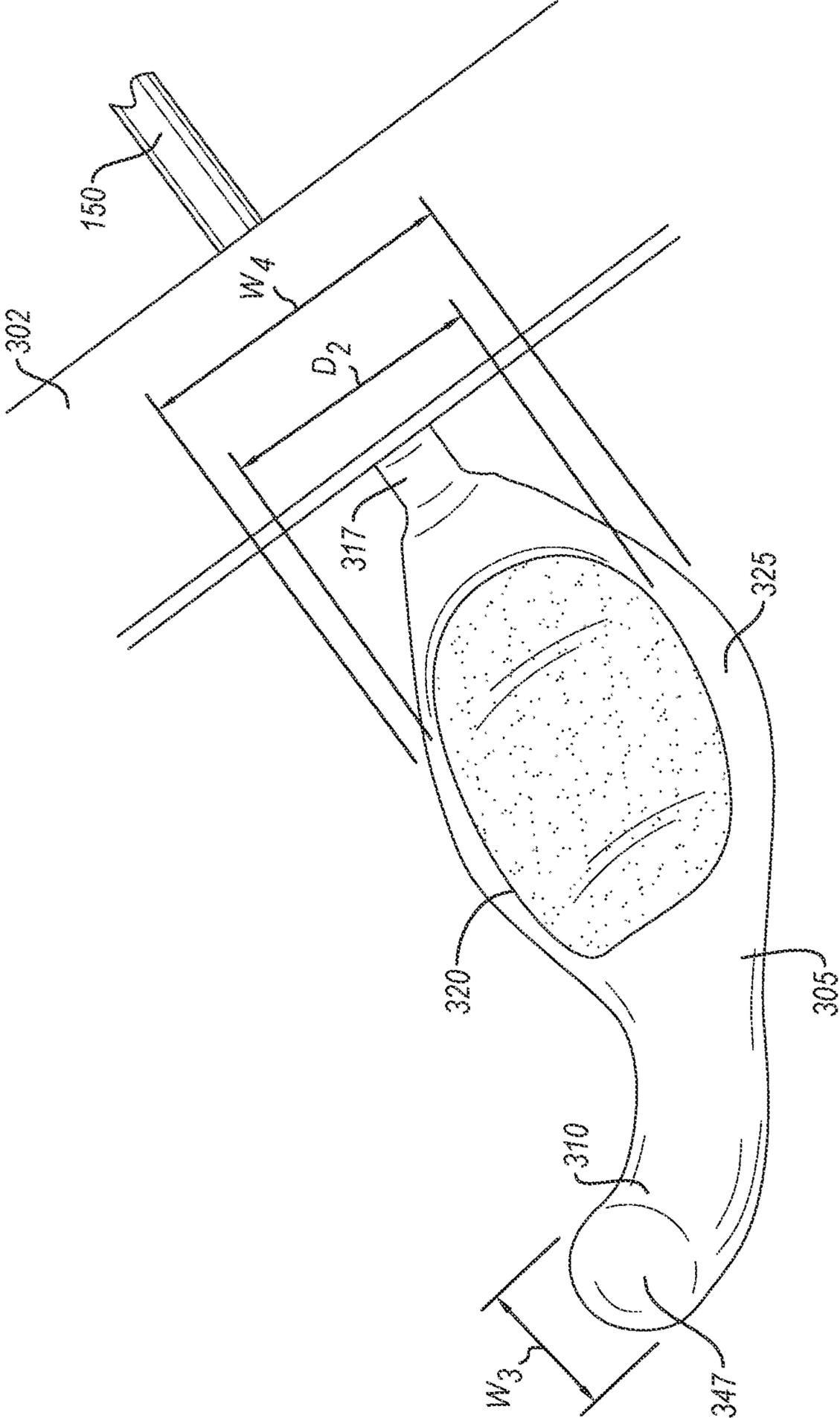


FIG.3C

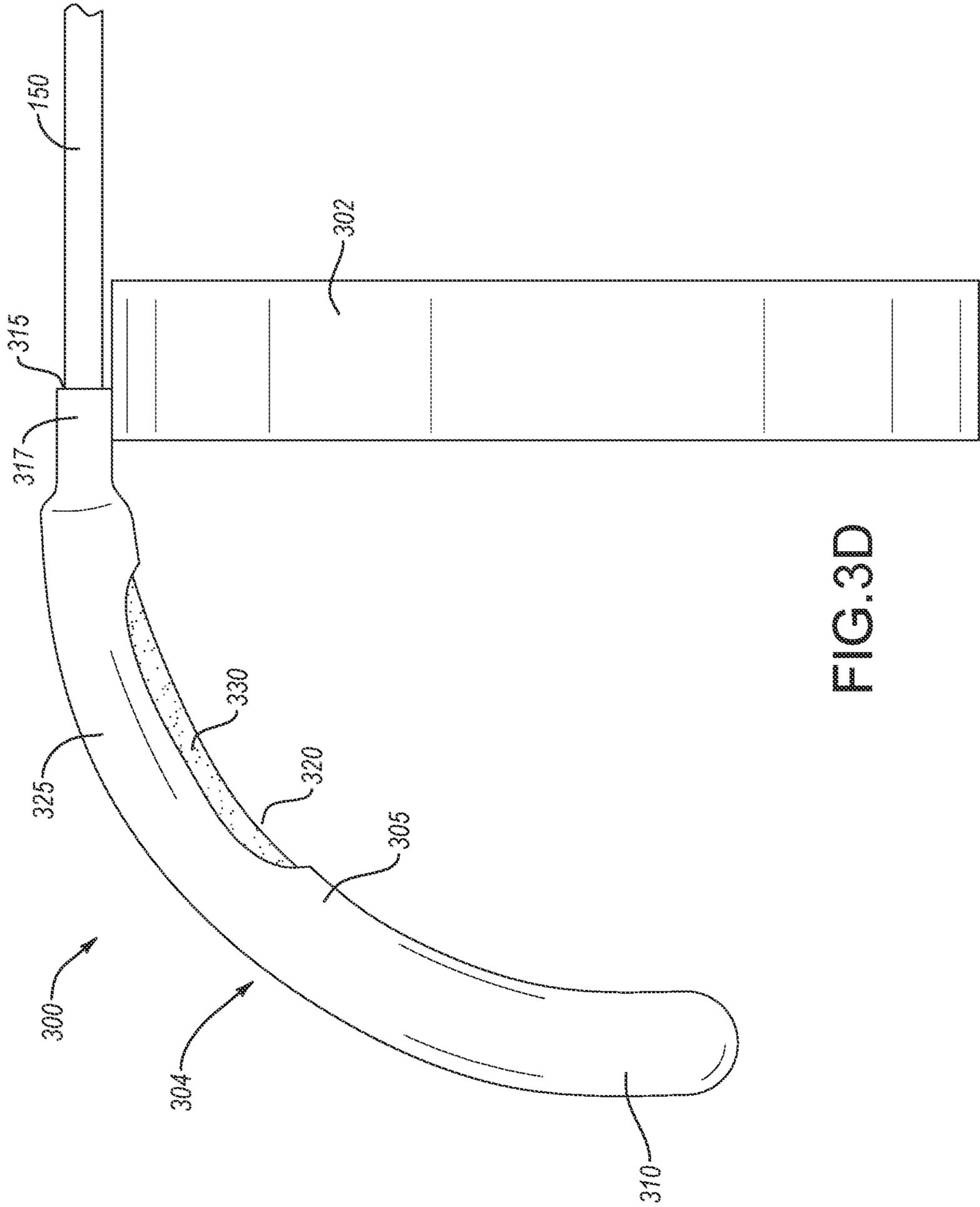


FIG. 3D

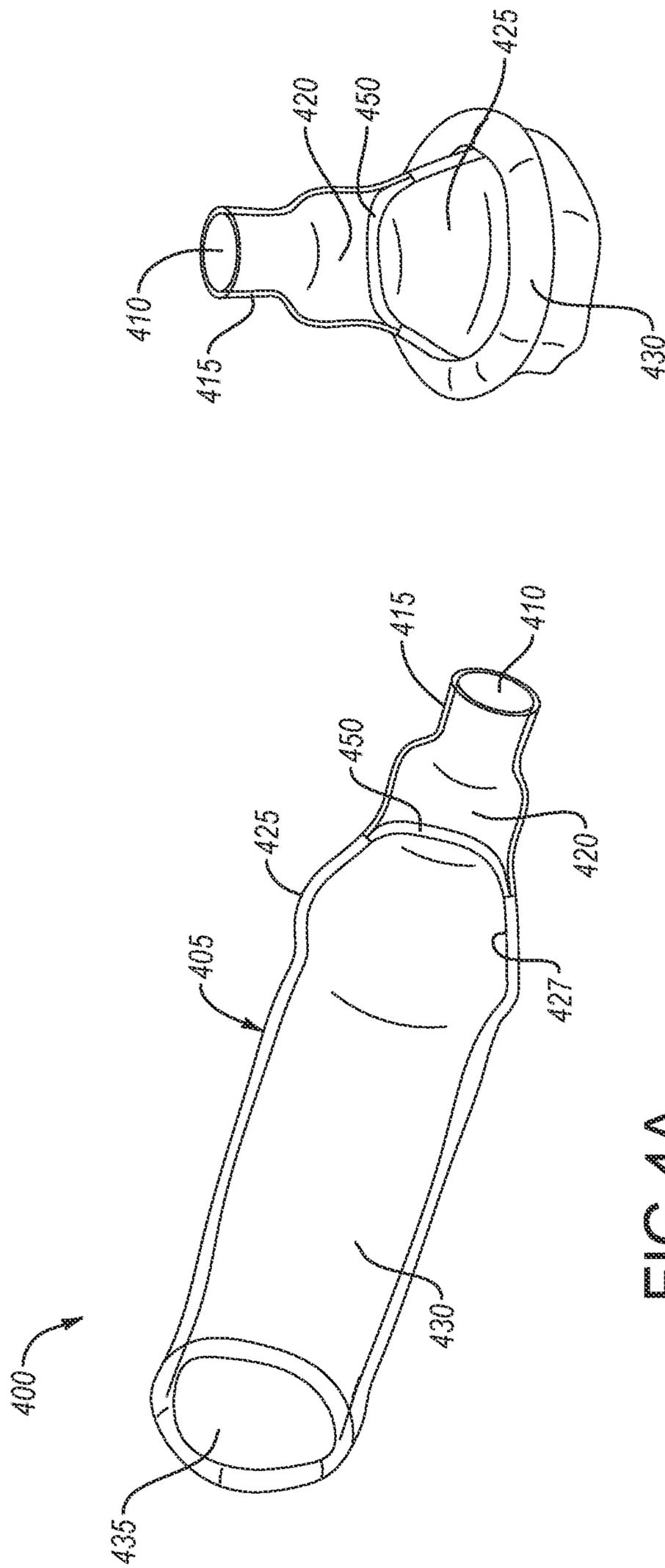


FIG. 4A

FIG. 4B

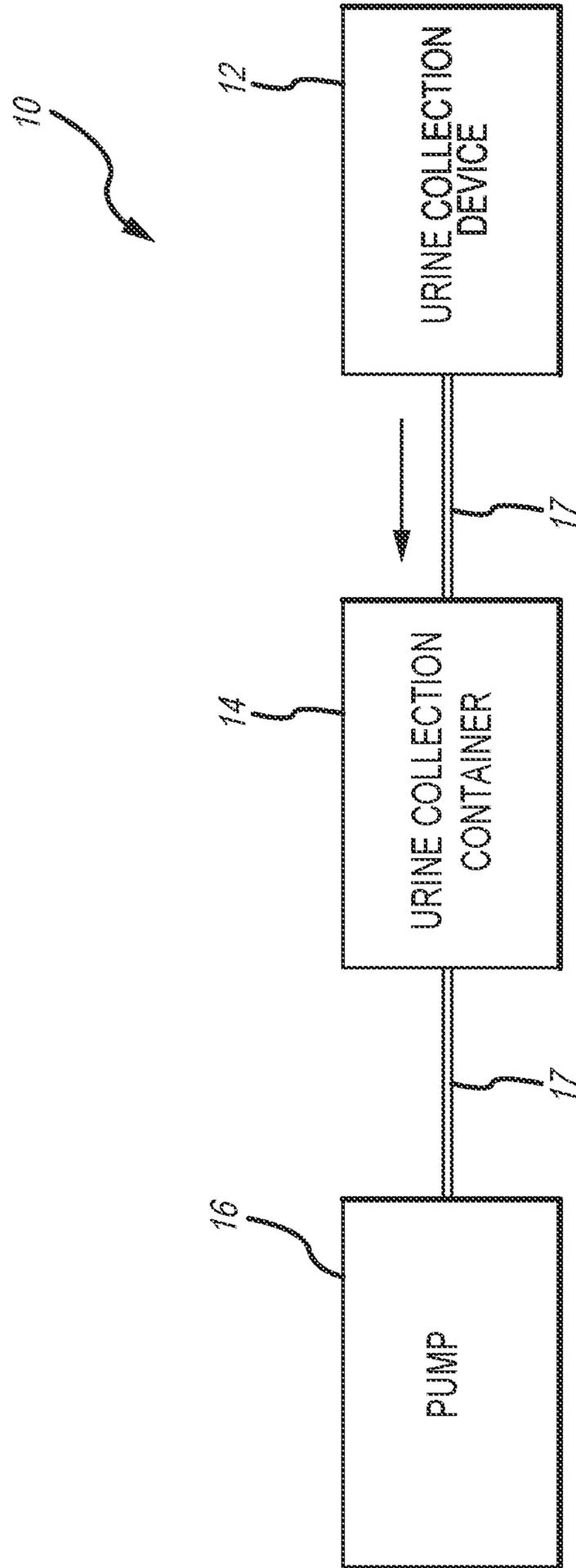


FIG.5

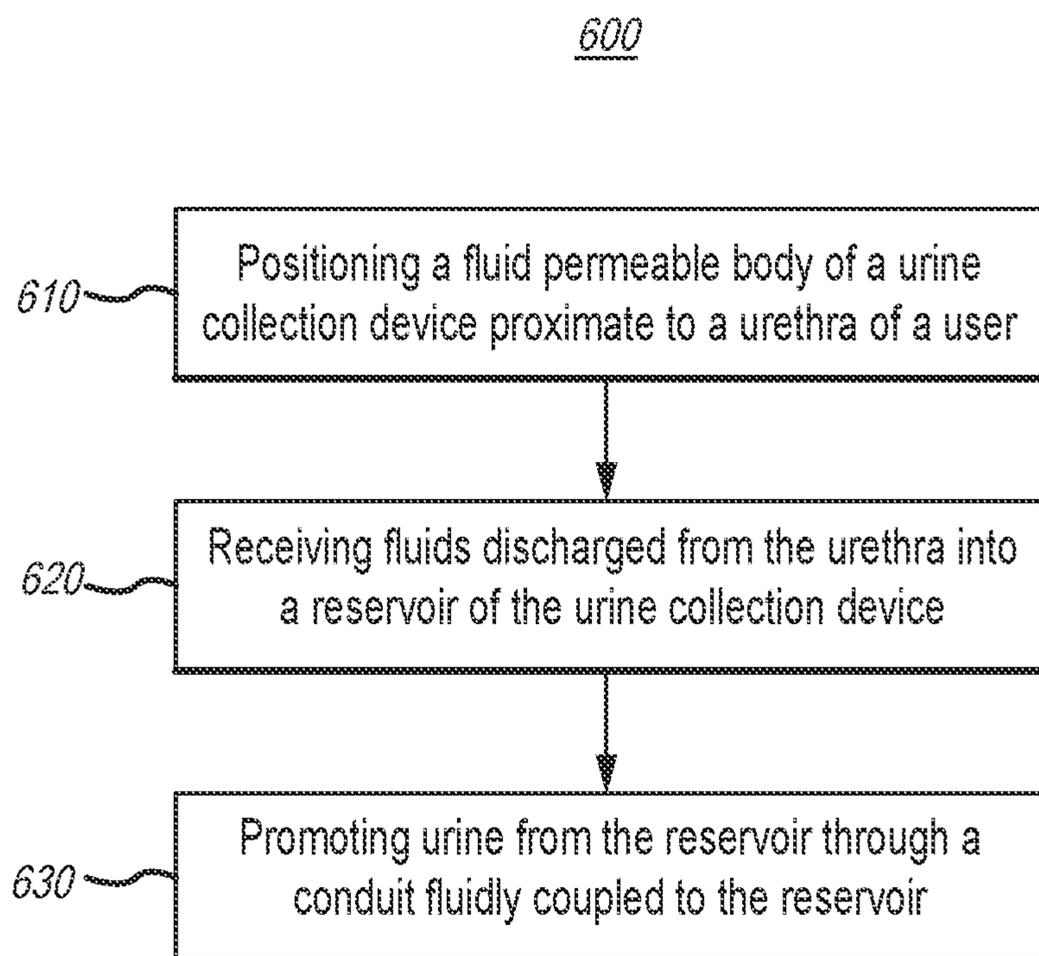


FIG.6

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**URINE COLLECTION DEVICES HAVING A  
RELATIVELY WIDE PORTION AND AN  
ELONGATED PORTION AND RELATED  
METHODS**

CROSS-REFERENCE TO RELATED  
APPLICATIONS

This application is a U.S. Nationalization of PCT International Application No. PCT/US2020/067455 filed on 30 Dec. 2020, which claims priority to U.S. Provisional Patent Application No. 62/956,770 filed on Jan. 3, 2020, the disclosure of which is incorporated herein, in its entirety, by this reference.

BACKGROUND

An individual may have limited or impaired mobility such that typical urination processes are challenging or impossible. For example, the individual may have surgery or a disability that impairs mobility. In another example, the individual may have restricted travel conditions such as those experienced by pilots, drivers, and workers in hazardous areas. Additionally, fluid collection from the individual may be needed for monitoring purposes or clinical testing.

Bed pans and urinary catheters, such as a Foley catheter, may be used to address some of these circumstances. However, bed pans and urinary catheters have several problems associated therewith. For example, bed pans may be prone to discomfort, spills, and other hygiene issues. Urinary catheters may be uncomfortable, painful, and may cause urinary tract infections.

Thus, users and manufacturers of urine collection devices continue to seek new and improved devices, systems, and methods to collect urine.

SUMMARY

Embodiments disclosed herein are related to urine collection devices and methods of using urine collection devices. In an embodiment, a urine collection device includes a fluid impermeable barrier and a fluid permeable body. The fluid impermeable barrier at least partially defines a chamber and includes at least one elongated portion and a second portion. The at least one elongated portion has a first width. The second portion has a second width greater than the first width, and at least partially defines an aperture distal to the at least one elongated portion and an opening having a maximum lateral dimension greater than the first width. The fluid permeable body is positioned at least partially within the chamber to extend across at least a portion of the opening and into at least a portion of the at least one elongated portion of the fluid impermeable body. The fluid permeable body is configured to wick fluid away from the opening into the at least one elongated portion.

In an embodiment, a urine collection device includes a receptacle and fluid permeable body. The receptacle is sized to receive a head of a penis therein with at least a portion of an inner surface of the receptacle contacting the head of the penis. The fluid permeable body defines at least a portion of the receptacle, and the fluid permeable support is configured to wick fluid away from the receptacle for removal from the urine collection device.

In an embodiment, a method of collecting urine is disclosed. The method includes positioning a fluid permeable body of a urine collection device at least proximate to a urethra of a user. The fluid permeable body extends at least

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partially across an opening defined by a fluid impermeable barrier of the urine collection device. The method also includes receiving fluids discharged from the urethra into a reservoir void of material of the urine collection device, the reservoir being at least partially defined by a portion of the fluid permeable body and a portion of the fluid impermeable barrier. The method also includes promoting urine from the reservoir through a conduit fluidly coupled to the reservoir.

Features from any of the disclosed embodiments may be used in combination with one another, without limitation. In addition, other features and advantages of the present disclosure will become apparent to those of ordinary skill in the art through consideration of the following detailed description and the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

The drawings illustrate several embodiments of the present disclosure, wherein identical reference numerals refer to identical or similar elements or features in different views or embodiments shown in the drawings.

FIG. 1A is a front plan view of a urine collection device, according to an embodiment.

FIG. 1B is a cross-sectional view of the urine collection device of FIG. 1A taken along line A-A.

FIG. 2A is a front plan view of a urine collection device, according to an embodiment.

FIG. 2B is a front cross-sectional view of the urine collection device of FIG. 2A taken along line B-B.

FIGS. 3A-3C are isometric views of a urine collection system, according to an embodiment.

FIG. 3D is a side view of the urine collection system of FIGS. 3A-3C.

FIGS. 4A-4B are isometric views of a urine collection device, according to an embodiment.

FIG. 5 is a block diagram of a urine collection system, according to an embodiment.

FIG. 6 is a flow diagram of a method for collecting urine, according to an embodiment.

DETAILED DESCRIPTION

Embodiments disclosed herein are related to urine collection devices and methods of using the same. The devices and systems disclosed herein are configured to collect fluids from an individual. The fluids collected by the urine collection devices may include at least one of urine, vaginal discharge, penile discharge, reproductive fluids, blood, sweat, or other bodily fluids. Conventional urine collection devices, particularly for males, may be difficult to retain in place with a fluid permeable portion of the urine collection device proximate to or adjacent to a urethra of the user. Many embodiments described herein provide securement elements and/or a larger surface area to collect urine discharged from the urethra, while also including a wicking material that promotes flow of discharged urine to a reservoir for removal from the urine collection device.

Urine collection devices described herein may be used in urine collection systems. The urine collection systems can include a urine collection device, a fluid storage container, and a portable vacuum source. Fluid (e.g., urine or other bodily fluids) collected in the urine collection device may be removed from the urine collection device via a conduit which protrudes into an interior region of the urine collection device. For example, a first open end of the conduit may extend into the urine collection device to be in fluid communication with a reservoir therein. The second open end of

the conduit may extend into the urine collection container or the portable vacuum source. The suction force may be introduced into the interior region of the urine collection device via the first open end of the conduit responsive to a suction (e.g., vacuum) force applied at the second end of the conduit. The suction force may be applied to the second open end of the conduit by the portable vacuum source either directly or indirectly.

In some embodiments, the portable vacuum source may be disposed in or on the urine collection device. In such embodiments, the conduit may extend from the urine collection device and attach to the portable vacuum source at a first point therein. An additional conduit may attach to the portable vacuum source at a second point thereon and may extend out of the urine collection device, and may attach to the fluid storage container. Accordingly, a vacuum (e.g., suction) may be drawn through urine collection device via the fluid storage container. Fluid, such as urine, may be drained from the urine collection device using the portable vacuum source.

FIG. 1A is a front plan view of a urine collection device **100**, according to an embodiment. Conventional urine collection devices may be configured to collect urine from only one of (1) a protruding penis or (2) a male having a buried penis and/or a female. The urine collection device **100** is an example of a urine collection device **100** that is configured to receive fluids from a male with either a buried or a protruding penis, or a female. Thus, urine collection device **100** improves upon conventional urine collection device because the urine collection device **100** may be suitable for effective use with multiple genders and/or anatomical features.

The urine collection device **100** includes a fluid impermeable barrier **105** having a generally tubular elongated portion **110** and a second portion **125**. The elongated portion **110** includes a width  $W_1$  and a length  $L_1$ . The second portion **125** includes a width  $W_2$  that is greater than the width  $W_1$  of the elongated portion **110** and a length  $L_2$ . The second portion **125** may narrow from the width  $W_2$  to the elongated portion **110**. For example, the second portion **125** may be generally triangular and narrow towards the elongated portion **110**. In some embodiments, the width  $W_2$  of the second portion **125** is at least 1.5 or 2.0 times greater than the width  $W_1$  of the elongated portion **110**. For example, the width  $W_1$  of the elongated portion **110** may be about 0.5 inches to about 1 inch and the width  $W_2$  of the second portion **125** may be at least about 1.5 inches or at least about 2 inches. The length  $L_1$  of the elongated portion **110** may be less than, greater than, or substantially equal to the length  $L_2$  of the second portion **125**. For example, length  $L_1$  of the elongated portion **110** may be about 0.5 to about 1.5 times the length  $L_2$  of the second portion **125**.

The second portion **125** of the fluid impermeable barrier **105** may include a substantially flat or planar area. That is, the second portion **125** of the fluid impermeable barrier **105** may include a substantially flat back side and front side defining an opening **120** having a substantially planar profile. The fluid impermeable barrier **105** also may include or define an aperture **115** on the second portion **125** distal to the elongated portion **110**. The aperture **115** is configured to receive a conduit **150** therethrough. The fluid impermeable barrier **105** also at least partially defines a chamber (e.g., interior region). The opening **120** is formed in and extends through the fluid impermeable barrier **105**, thereby enabling fluids to enter the chamber from outside of the urine collection device **100**. The opening **120** can be configured to be positioned adjacent to a female urethra, positioned adjacent

to the skin of a female over the urethra, or positioned adjacent to the skin over the penis of a male having a buried penis. The opening **120** can include a maximum lateral dimension  $D_1$  that is at least 1.5 times greater than the width  $W_1$  of the elongated portion **110**. For example, the opening **120** can include a maximum lateral dimension  $D_1$  that is at least about 1.5 inches, at least about 2 inches, at least about 2.5 inches, at least about 3 inches, about 1.5 inches to about 2.5 inches, or about 2.5 inches to about 3.5 inches. The opening **120** can include a maximum lateral dimension  $D_1$  that is at least 1.5 times greater than the width  $W_1$  of the elongated portion **110**, which allows for easier positioning and securement of the urine collection device **100** over a buried penis, with the elongated portion **110** extending between the thighs and pelvis for more secure positioning of the urine collection device **100** against the individual. With the urine collection device **100** positioned proximate to the female urethra, positioned adjacent to the skin of a female over the urethra, or positioned adjacent to the skin over the penis of a male having a buried penis, urine may enter the interior region or chamber of the urine collection device **100** via the opening **120**. Accordingly, the urine collection device **100** is configured to receive the fluids into the chamber via the opening **120**.

The fluid impermeable barrier **105** may also temporarily store the fluids in the chamber. As such, the fluid impermeable barrier **105** substantially prevents the fluids from exiting the portions of the chamber that are spaced from the opening **120**. The fluid impermeable barrier **105** is flexible, allowing the urine collection device **100** to bend or curve when positioned against the body of a wearer. For example, the fluid impermeable barrier **105** can be formed of any suitable fluid impermeable materials, such as a fluid impermeable polymer (e.g., silicone, polypropylene, polyethylene, polyethylene terephthalate, a polycarbonate, etc.), polyurethane films, thermoplastic elastomer, oil, another suitable material, or combinations thereof.

The urine collection device **100** also includes a penis pocket **133** sized and dimensioned to receive at least a head of a penis within the pocket **133**. The pocket **133** may extend from the opening **120** toward the elongated portion **110** of the fluid impermeable barrier **105**. The pocket **133** may be defined at least partially by an outer wall **135** positioned on the outside of the urine collection device **100** and an inner wall positioned between the outer wall and at least a portion of the fluid permeable body **130**. In some embodiments the pocket **133** is defined at least partially by a mesh outer wall **135** and an inner wall **137**. The outer wall **135**, such as a mesh outer wall, may be flexible or elastic, and may extend across a lower portion of the opening **120** proximate to the elongated portion **110** of the fluid impermeable barrier **105**. For example, the opening **120** may narrow towards the elongated portion **110**, and the outer wall **135** may cover at least a portion of the opening **120** that narrows towards the elongated portion **110**. Accordingly, the opening **120** may include a portion extending from the second portion **125** of the fluid impermeable barrier **105** towards the elongated portion **110** that has a width that is less than the maximum lateral dimension  $D_1$  of the opening **120**. In other embodiments, the outer wall may include a fluid impermeable outer wall.

Turning to FIG. 1B, which shows a cross-sectional view of the urine collection device taken along line A-A of FIG. 1A, the pocket **133** also is partially defined by the inner wall **137** extending into the chamber of the fluid impermeable barrier **105**. Accordingly, the pocket **133** may extend at least partially into the chamber defined by the fluid impermeable

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barrier 105. The inner wall 137 may include a fluid impermeable inner wall or a fluid permeable inner wall. The inner wall 137 may extend from a lower portion of the opening 120 towards the elongated portion 110. In some embodiments, the inner wall 137 extends from a lower portion of the opening 120 to a hole 165 or base of the pocket 133 positioned beyond the opening 120. For example, the inner wall 137 may extend from a lower portion of the opening 120 to the hole 165 positioned within the chamber defined by the elongated portion 110 of the fluid impermeable barrier 105. In other embodiments, the inner wall 137 is substantially planar with the fluid permeable body 130 exposed through the opening 120, such that there is no recess in the fluid permeable body 130. In some embodiments, the fluid permeable body is the inner wall 137 defining at least a portion of the pocket 133 and the fluid impermeable inner wall is absent. For example, in some embodiments, the pocket 133 is at least partially defined by a mesh outer wall or a fluid impermeable outer wall and a fluid permeable inner wall of the fluid permeable body 130.

When used, an individual may position at least the head of the penis within the pocket 133 such that a portion of the head of the penis interfaces the inner wall 137, a portion of the head of the penis interfaces the outer wall 135, and the urethra of the penis is positioned proximate to the hole 165 or base of the pocket 133. With the urethra of the penis positioned proximate to the hole 165, fluids discharged from the penis exit the pocket 133 through the hole 165 and into the chamber defined by the fluid impermeable barrier 105.

The urine collection device 100 includes a fluid permeable body 130 or layer disposed in the chamber. The fluid permeable body 130 can cover or extend across at least a portion (e.g., all) of the opening 120. The portion of the fluid permeable body 130 covering or extending across at least a portion of the opening 120 may be substantially flat or planar. Accordingly, the second portion 125 fluid impermeable barrier 105 may define an opening 120 on the front side having a substantially planar profile with the fluid permeable body 130 positioned therein.

The fluid permeable body 130 can be configured to wick any fluid away from the opening 120, thereby preventing the fluid from escaping the chamber of the fluid impermeable barrier 105. The fluid permeable body 130 also can wick the fluid generally towards an interior of the chamber, as discussed in more detail below. A portion of the fluid permeable body 130 can define a portion of an outer surface of the urine collection device 100. Specifically, the portion of the fluid permeable body 130 defining the portion of the outer surface of the urine collection device 100 can be the portion of the fluid permeable body 130 exposed by the opening 130 defined by the fluid impermeable barrier 105 that contacts the user.

The fluid permeable body 130 can include any material that can wick or allow the fluid to flow therethrough. The permeable properties referred to herein can be wicking, capillary action, diffusion, or other similar properties or processes, and are referred to herein as “permeable” and/or “wicking.” Such “wicking” may exclude absorption into the wicking material.

The fluid permeable body 130 can include a one-way fluid movement fabric. As such, the fluid permeable body 130 can remove fluid from the area around the buried penis or female urethra, thereby leaving the area and urethra dry. The fluid permeable body 130 can enable the fluid to flow generally towards a reservoir 145 of void space formed within the chamber. The reservoir 145 may be positioned within a distal end 147 of the elongated portion 110 distal to the

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second portion 125. The fluid permeable body 130 can include a porous or fibrous material, such as hydrophilic polyolefin. In some embodiments, the fluid permeable body 130 consists of or consists essentially of a porous or fibrous material, such as hydrophilic polyolefin. Examples of polyolefin that can be used in the fluid permeable body 130 include, but are not limited to, polyethylene, polypropylene, polyisobutylene, ethylene propylene rubber, ethylene propylene diene monomer, or combinations thereof. The porous or fibrous material may be extruded into a substantially shape to fit within the chamber of the fluid impermeable barrier 105. The fluid permeable body 130 may be shaped generally complementary to the shape of the fluid impermeable barrier 105. For example, the fluid permeable body 130 may include at least a substantially flat or planar portion that extends across at least a portion of the opening 120. The fluid permeable body 130 also may additionally or alternatively include a substantially flat or planar portion that interfaces the back side of the fluid impermeable barrier 105 opposite of the opening 120. Moreover, the fluid permeable body 130 can be manufactured according to various manufacturing methods, such as molding, extrusion, or sintering. The fluid permeable body 130 can include varying densities or dimensions.

In some embodiments, the fluid permeable body 130 can include two or more layers of fluid permeable materials and include no more than two layers of material between the opening 130 and the conduit 150 positioned within the fluid permeable body 130. For example, the urine collection device 100 can include a fluid permeable membrane covering or wrapped around a fluid permeable support of the fluid permeable body 130, with both the fluid permeable membrane and the fluid permeable support being disposed in the chamber of the fluid impermeable barrier 105. The fluid permeable membrane can cover or extend across at least a portion (e.g., all) of the opening 120. The fluid permeable membrane and the fluid permeable support can be configured to wick any fluid away from the opening 120, thereby preventing the fluid from escaping the chamber. The permeable properties referred to herein can be wicking, capillary action, diffusion, or other similar properties or processes, and are referred to herein as “permeable” and/or “wicking.” In some embodiments, at least one of the fluid permeable membrane or the fluid permeable support include nylon configured to wick fluid away from the opening 120. The material of the fluid permeable membrane and the fluid permeable support also can include natural fibers. In such examples, the material may have a coating to prevent or limit absorption of fluid into the material, such as a water repellent coating. Such “wicking” may not include absorption into the wicking material. Put another way, substantially no absorption of fluid into the material may take place after the material is exposed to the fluid and removed from the fluid for a time. While no absorption is desired, the term “substantially no absorption” may allow for nominal amounts of absorption of fluid into the wicking material (e.g., absorbency), such as less than about 10 wt % of the dry weight of the wicking material, less than about 7 wt %, less than about 5 wt %, less than about 3 wt %, less than about 2 wt %, less than about 1 wt %, or less than about 0.5 wt % of the dry weight of the wicking material.

The fluid permeable membrane can also wick the fluid generally towards an interior of the chamber, as discussed in more detail below. The fluid permeable membrane can include any material that can wick the fluid. For example, the fluid permeable membrane can include fabric, such as a gauze (e.g., a silk, linen, polymer based materials such as

polyester, or cotton gauze), nylon, another soft fabric (e.g., jersey knit fabric or the like), or another smooth fabric (e.g., rayon, satin, or the like). Forming the fluid permeable membrane from gauze, soft fabric, and/or smooth fabric can reduce chaffing caused by the urine collection device **100**. Other embodiments of fluid permeable membranes, fluid permeable supports, chambers, and their shapes and configurations are disclosed in U.S. patent application Ser. No. 15/612,325 filed on Jun. 2, 2017; U.S. patent application Ser. No. 15/260,103 filed on Sep. 8, 2016; U.S. patent application Ser. No. 15/611,587 filed on Jun. 1, 2017; PCT Patent Application No. PCT/US19/29608, filed on Apr. 29, 2019, the disclosure of each of which is incorporated herein, in its entirety, by this reference. In many embodiments, the fluid permeable body **130** includes a fluid permeable support including a porous nylon structure (e.g., spun nylon fibers) and a fluid permeable membrane including gauze about or over the porous nylon structure.

The fluid permeable body **130** may be shaped generally complementary to the shape of the fluid impermeable barrier **105**. In some embodiments, the fluid permeable body **130** includes an elongated portion **160** positioned within the elongated portion **110** of the fluid impermeable barrier **105** and a second portion **155** positioned within the second portion **125** of the fluid impermeable barrier **105**. The fluid permeable body **130** may include a recess **170** around at least a portion of the pocket **133**. For example, a portion of the elongated portion **160** and a portion of the second portion **155** of the fluid permeable body **130** may include a recess complementary or proximate to the inner wall **137**. In some embodiments, the portion of the fluid permeable body **130** defining the recess also defines the inner wall **137**. The recess **170** is sized and dimensioned to receive at least a portion of the head of the penis therein to allow insertion of the head of the penis into the pocket **133**. The recess **170** in the fluid permeable body **130** also positions a portion of the fluid permeable body proximate to the hole **165** in the pocket **133**.

The elongated portion **160** and the second portion **155** of the fluid permeable body **130** may be continuously connected to one another, or a gap or layer may be positioned between the elongated portion **160** and the second portion **155** of the fluid permeable body **130**. In some embodiments, a fluid impermeable barrier (not shown) separates the second portion **155** from the elongated portion **160** of the fluid permeable body. This fluid impermeable barrier is positioned to prevent urine or other fluids collected through the opening **120** from exiting through the pocket **133**. Instead, these fluids may be collected directly from the second portion **155** of the fluid permeable body **130** through, for example, perforations in the conduit **150** positioned in the second portion **155**.

The conduit **150** (e.g., a tube) extends through the aperture **115** (shown in FIG. 1A) into the chamber defined by the fluid impermeable barrier **105**. For example, the conduit **150** may extend through the aperture **115** to provide fluid communication between the conduit **150** and the reservoir **145**. The conduit **150** may extend into the reservoir **145**, as shown in FIG. 1B, or the conduit **150** may be generally flush with or recessed from the portion of the fluid permeable support defining the reservoir **145**. The conduit **150** may extend through or be positioned proximate to the second portion **155** and the elongated portion **160** of the fluid permeable body **130** in the chamber defined by the fluid impermeable barrier **105**. The conduit **150** provides fluid communication between the chamber and a fluid storage container (not shown) or a portable vacuum source (not shown). For

example, the conduit **150** may directly or indirectly fluidly couple the chamber and/or the reservoir **145** with the fluid storage container or the portable vacuum source. With the conduit **150** positioned within the fluid permeable body **130**, when the urine collection device **100** is secured to a user with any of a number of securing devices, fluids received in the chamber can be removed through the conduit **150**.

The fluid impermeable barrier **105** can store fluids in the reservoir **145** therein. The reservoir **145** is an unoccupied portion of the chamber and is void of other material (e.g., the fluid permeable body **130** and the fluid impermeable barrier **105** are absent from the reservoir **145**). In some embodiments, the reservoir **145** is defined at least partially by the fluid permeable body **130** and the fluid impermeable barrier **105**. The reservoir **145** may be disposed in any portion of the interior region of the chamber. For example, the fluid reservoir **145** may be positioned in the distal end **147** of the elongated portion **110**. In the illustrated embodiment, the reservoir **145** is defined by at least a portion of an end of the elongated portion **160** the fluid permeable body **130** and the distal end **147** of the elongated portion **110** of the fluid impermeable barrier **105**.

In use, the urine collection device **100** is not limited to a single gender or anatomical features, but advantageously may be used with a variety of anatomies and/or genders. For example, the opening **120** of the urine collection device **100** may be positioned over a buried penis of a male or proximate to a female urethra to collect discharged urine or other bodily fluids through the opening and into the fluid permeable body **130**. Alternatively, at least a portion of the head of the penis may be inserted into the pocket **133** of the urine collection device **100** to collect discharged urine or other bodily fluids through the opening **165** and into the fluid permeable body **130**. The discharged urine or other bodily fluids may be wicked through the fluid permeable body **130** to the conduit **150** for removal from the urine collection device **100** through the conduit **150**. The discharged urine or other bodily fluids may be wicked through the fluid permeable body **130** to the reservoir **145** for removal from the urine collection device **100** through the conduit **150**. The discharged urine or other bodily fluids may be wicked through the fluid permeable body **130** to perforations in the conduit **150** for removal from the urine collection device **100** through the conduit **150**.

Turning to FIGS. 2A-2B, a urine collection device **200** may include a fluid impermeable barrier **205** having two elongated portions **210** and an upper or second portion **125**. Unless otherwise noted, the urine collection device **200** may include any of the elements or features described above in relation to the urine collection device **100**, such as the aperture **115**, the opening **120**, the pocket **133**, the outer wall **135**, the inner wall **137**, the width  $W_2$ , the maximum lateral dimension  $D_1$ , and/or the length  $L_2$ . Moreover, the fluid impermeable barrier **205** may include any of the materials of the fluid impermeable barrier **105** described in relation to the urine collection device **100**. In some embodiments, each of the two elongated portions **210** may include a width  $W_1$  similar or equal to the width  $W_1$  of the urine collection device **100**.

The two elongated portions **210** of the urine collection device **200** may be angled relative to one another. For example, the two elongated portions **210** may be angled to form a V-shaped configuration that allows the scrotum and testicles of a user to be positioned or held between two elongated portions **210**. This configuration allows the user to lay on his side while wearing or using the urine collection device **200**. The angle between the two elongated may be

about 30 degrees to about 150 degrees, about 30 degrees to about 60 degrees, about 60 degrees to about 90 degrees, about 90 degrees to about 120 degrees, or about 120 degrees to about 150 degrees.

The urine collection device **200** also includes a fluid permeable body **230** or layer disposed in the chamber defined by the fluid impermeable barrier **205**. The fluid permeable body **230** may include any of the materials of the fluid permeable body **230** described in relation to the urine collection device **100**. The fluid permeable body **230** can cover or extend across at least a portion (e.g., all) of the opening **120**. The portion of the fluid permeable body **230** covering or extending across at least a portion of the opening **120** may be substantially flat or planar. Accordingly, the second portion **225** fluid impermeable barrier **205** may define an opening **120** on the front side having a substantially planar profile with the fluid permeable body **230** positioned therein.

The fluid permeable body **230** may be shaped generally complementary to the shape of the fluid impermeable barrier **205**. In some embodiments, the fluid permeable body **230** includes two elongated portions **260** positioned within the elongated portions **210** of the fluid impermeable barrier **205** and a second portion **255** positioned within the second portion **225** of the fluid impermeable barrier **205**. The fluid permeable body **230** may include a recess around at least a portion of the pocket **133**. For example, at least one of a portion of the elongated portions **260** or a portion of the second portion **255** of the fluid permeable body **230** may include a recess complementary or proximate to the inner wall **137**. The recess is sized and dimensioned to receive at least a portion of the head of the penis therein to allow insertion of the head of the penis into the pocket **133**. The recess in the fluid permeable body **230** also positions a portion of the fluid permeable body proximate to a hole in the pocket **133**.

The elongated portions **260** and the second portion **255** of the fluid permeable body **230** may be continuously connected to one another, or a gap or layer may be positioned between the elongated portions **260** and the second portion **255** of the fluid permeable body **230**. In some embodiments, a fluid impermeable barrier (not shown) separates the second portion **255** from the elongated portions **260** of the fluid permeable body. This fluid impermeable barrier is positioned to prevent urine or other fluids collected through the opening **120** from exiting through the pocket **133**. Instead, these fluids may be collected directly from the second portion **255** of the fluid permeable body **230** through, for example, perforations in the conduit **150** positioned in the second portion **255**.

The conduit **250** (e.g., a tube) extends through the aperture **115** into the chamber defined by the fluid impermeable barrier **205**. For example, the conduit **250** may extend through the aperture **115** to or partially into the reservoirs **245** in the two elongated portions **210**. The conduit **250** may include two first portions **275** each positioned in a different elongated portion **210** of the fluid impermeable barrier **205**. The conduit **250** also may include a second portion **280** positioned in the second portion **125** of the urine collection device **200**. A Y connector **270** may connect the second portion **280** of the conduit **250** with the two first portions **275** of the conduit **250**, thereby providing fluid communication between the two reservoirs **245** in the two elongated portions **210** with the second portion **280** of the conduit **250**. The second portion **280** of the conduit **250** may extend through or be positioned proximate to the second portion **255** and the elongated portions **260** of the fluid permeable body **230** in

the chamber defined by the fluid impermeable barrier **205**. The conduit **250** provides fluid communication between the chamber and a fluid storage container (not shown) or a portable vacuum source (not shown). For example, the conduit **250** may directly or indirectly fluidly couple the chamber and/or the reservoirs **245** with the fluid storage container or the portable vacuum source. With the conduit **250** positioned within the fluid permeable body **230**, when the urine collection device **100** is secured to a user with any of a number of securing devices, fluids received in the chamber can be removed through the conduit **250**.

Many male patients that may benefit from a urine collection system have a buried penis or a penis with insufficient length to support a conventional male urine collection device. Accordingly, a urine collection device having an elongated portion for positioning between the legs and also a larger opening for collecting urine would improve urine collection for these individuals. FIG. 3A is an isometric view of a urine collection system **300** including a urine collection device **304** secured to a belt **302**. FIG. 3B is a partial rear view of the urine collection system **300** with the urine collection device **304** secured to the belt **302**. FIG. 3C is a close-up view of the urine collection device **304** secured to the belt **302**. FIG. 3D is a side view of the urine collection system **300** with the urine collection device **304** secured to the belt **302**. References to FIGS. 3A-3D are made below.

The urine collection device **304** is an example of a urine collection device **304** that is configured to receive fluids from a male with a buried penis or a penis of limited length, or a female. The urine collection device **304** of the urine collection system **300** is secured to a belt **302**. The belt **302** may include an elastic belt sized to fit around the waist or a leg of a wearer to position the opening **320** of the urine collection device **304** over the urethra of the individual wearing the urine collection system **300**. The urine collection device **304** may be fixedly or detachably secured to the belt **302**. In some embodiments, the urine collection device **304** is secured to the belt **302** with one or more of an adhesive, stitching, magnets, or a hook and loop fastener, such as VELCRO®. Although not shown in FIGS. 1A-2B, the belt **302** may be used with the urine collection device **100** or **200**. For example, the urine collection device **100** or **200** may be secured to the belt **302** as described in relation to the urine collection device **304**.

The urine collection device **304** includes a fluid impermeable barrier **305** having a generally tubular elongated portion **310** and a second portion **325**. The elongated portion **310** includes a width  $W_3$ . The width  $W_3$  of the elongated portion may be generally continuous until the elongated portion **310** tapers at a rounded distal end. The second portion **325** includes a maximum width  $W_4$  that is greater than the width  $W_3$  of the elongated portion **310**, and the second portion **325** may narrow from the maximum width  $W_4$  to the elongated portion **310**. For example, the second portion **325** may include a generally oval profile, with the oval being elongated between the neck **317** and the elongated portion **310**. In some embodiments, the maximum width  $W_4$  of the second portion **325** is at least 1.5 or 2.0 times greater than the width  $W_3$  of the elongated portion **310**. For example, the width  $W_3$  of the elongated portion **310** may be about 0.5 inches to about 1 inch and the maximum width  $W_4$  of the second portion **325** may be at least about 1.5 inches or at least about 2 inches.

The fluid impermeable barrier **305** also may include a neck **317** defining an aperture **315** on the second portion **325** distal to the elongated portion **310**. The neck **317** may be secured to the belt **302**, and the aperture **315** is configured

to receive a conduit **150** therethrough. The fluid impermeable barrier **305** also at least partially defines a chamber (e.g., interior region). The opening **320** is formed in and extends through the fluid impermeable barrier **305**, thereby enabling fluids to enter the chamber from outside of the urine collection device **304**. The opening may be generally oval in shape complementary to the second portion **325**. The opening **320** can be configured to be positioned adjacent to a female urethra, positioned adjacent to the skin of a female over the urethra, or positioned adjacent to the skin over the penis of a male having a buried penis. The opening **320** can include a lateral dimension  $D_2$  that is at least about 1.5 times greater than the width  $W_3$  of the elongated portion **310**. For example, the opening **320** can include a lateral dimension  $D_2$  that is at least about 1.5 inches. A urine collection device having opening **320** can include a lateral dimension  $D_2$  that is at least about 1.5 times greater than the width  $W_3$  of the elongated portion **310** allows for easier positioning and securement of the urine collection device **304** over a buried penis, with the elongated portion **310** extending between the thighs and pelvis for more secure positioning of the urine collection device **304** against the individual. With the urine collection device **304** positioned proximate to the female urethra, positioned adjacent to the skin of a female over the urethra, or positioned adjacent to the skin over the penis of a male having a buried penis, urine may enter the interior region or chamber of the urine collection device **304** via the opening **320**. Accordingly, the urine collection device **304** is configured to receive the fluids into the chamber via the opening **320**.

The fluid impermeable barrier **305** may also temporarily store the fluids in the chamber. As such, the fluid impermeable barrier **305** substantially prevents the fluids from exiting the portions of the chamber that are spaced from the opening **320**. The elongated portion **310** and the second portion **325** of fluid permeable barrier **305** may be shaped to generally form an arc (shown in FIG. 3D). The fluid permeable barrier **305** may include a length of about 6 to 8 inches from the neck **317** to the distal end **347**. The fluid impermeable barrier **305** is flexible, allowing the urine collection device **304** to bend or curve when positioned against the body of a wearer. For example, the fluid impermeable barrier **305** can be formed of any suitable fluid impermeable materials described above in relation to the fluid impermeable barrier **105**.

The urine collection device **304** includes a fluid permeable body **330** or layer disposed in the chamber. The fluid permeable body **330** can cover or extend across at least a portion (e.g., all) of the opening **320**. The portion of the fluid permeable body **330** covering or extending across at least a portion of the opening **320** may be substantially flat or arced with the arc of the fluid impermeable barrier **305**. Accordingly, the second portion **325** fluid impermeable barrier **305** may define an opening **320** on the front side having a substantially planar profile or an arced profile with the fluid permeable body **330** positioned therein.

The fluid permeable body **330** can be configured to wick any fluid away from the opening **320**, thereby preventing the fluid from escaping the chamber of the fluid impermeable barrier **305**. The fluid permeable body **330** also can wick the fluid generally towards an interior of the chamber. A portion of the fluid permeable body **330** can define a portion of an outer surface of the urine collection device **304**. Specifically, the portion of the fluid permeable body **330** defining the portion of the outer surface of the urine collection device **304** can be the portion of the fluid permeable body **330** exposed by the opening **330** defined by the fluid imperme-

able barrier **305** that contacts the user. The fluid permeable body **330** can include any material described above in relation to the fluid permeable body **130**.

The fluid permeable body **330** may be shaped generally complementary to the shape of the fluid impermeable barrier **305**. In some embodiments, the fluid permeable body **330** includes an elongated portion positioned within the elongated portion **310** of the fluid impermeable barrier **305** and a second portion positioned within the second portion **325** of the fluid impermeable barrier **305**. The second portion may be generally oval shaped complementary to the oval shape of the second portion **325**. The elongated portion and the second portion of the fluid permeable body **330** may be continuously connected to one another.

The conduit **150** extends through the aperture **315** into the chamber defined by the fluid impermeable barrier **305**. For example, the conduit **150** may extend through the aperture **315** to or partially into the reservoir in the distal end **347** of the elongated portion **310**. In use, the opening **320** of the urine collection device **304** may be positioned over a buried penis of a male or proximate to a female urethra to collect discharged urine or other bodily fluids through the opening **320** and into the fluid permeable body **330**. The discharged urine or other bodily fluids may be wicked through the fluid permeable body **330** to the conduit **150** for removal from the urine collection device **304** through the conduit **150**. The discharged urine or other bodily fluids may be wicked through the fluid permeable body **330** to the reservoir for removal from the urine collection device **304** through the conduit **150**.

A urine collection device according to this disclosure also may include an improved male external catheter. FIG. 4A shows an isometric view of a urine collection device **400** according to an embodiment. The urine collection device **400** includes a fluid impermeable barrier **405** defining a chamber and having an elongated portion **430**, a receptacle **425**, a port include a neck **415** defining an aperture **410** distal to the elongated portion **430**, and an opening **435** distal to the receptacle **425**. The fluid impermeable barrier **405** may include any materials described above in relation to the urine collection devices **100**, **200**, or **300**. In some embodiments, the fluid impermeable barrier **405** includes a rubber or silicone material.

The elongated portion **430** may form a sheath sized to secure the urine collection device **400** to the shaft of a penis with at least a portion of the shaft of the penis being inside the elongated portion. In some embodiments, the elongated portion **430** may unroll from a retracted position (shown in FIG. 4B) to an extended position (shown in FIG. 4A) around the shaft of the penis.

The receptacle **425** is proximate to the elongated portion **430** and may be sized and dimensioned generally frustoconical to receive at least a portion of a head of a penis therein. The receptacle **425** may include an inner surface that contacts at least a portion of a head of a penis when a penis is positioned within the urine collection device.

The receptacle **425** also may include a fluid permeable body **450** positioned within the chamber defined by the fluid impermeable barrier **405** to be proximate to the urethra on the head of the penis positioned at least partially within the receptacle **425**. For example, the receptacle **425** may include a wide end and a narrow end, and the fluid permeable body **450** may be positioned at the narrow end of the receptacle. In some embodiments, the fluid permeable body defines the inner wall of the receptacle **425** such that substantially all of the head of the penis interfaces the fluid permeable body **450** and not the fluid impermeable barrier **405**. The fluid perme-

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able body **450** may be secured to the fluid impermeable barrier **405** with an adhesive. The fluid permeable body **450** is configured to wick urine or other fluids discharged from the urethra away from the head of the penis. The fluid permeable body **450** may include any of the materials described above in relation to the fluid permeable bodies **130**, **230**, or **330**.

The fluid permeable body **450** is positioned within the fluid impermeable barrier **405** to wick discharged urine from the receptacle **425** to a reservoir **420**. The reservoir **420** may be an unoccupied portion of the urine collection device **400** that is void of other material and between the neck **415** and receptacle **425**. The aperture **410** defined by the neck **415** is configured to receive a conduit (not shown) therethrough. The conduit provides fluid communication between the reservoir **420** and a fluid storage container (not shown) or a portable vacuum source (not shown). For example, the conduit may directly or indirectly fluidly couple the reservoir with the fluid storage container or the portable vacuum source. With the conduit positioned within the fluid permeable body neck **415**, when the urine collection device **400** is secured to the penis, fluids received in the reservoir **420** can be removed through the conduit.

An individual may receive the urine collection device **400** with the elongated portion **430** in a retracted position as shown in FIG. **4B** before securing the urine collection device to the penis. The urine collection device **400** may be secured to the penis by inserting the penis through the opening **435** and positioning at least a portion of the head of the penis in the receptacle **425**. The elongated portion **430** may then be unrolled over the shaft of the penis until the elongated portion **430** is in the extended position shown in FIG. **4A**.

With the head of the penis at least partially positioned in the receptacle **425** and the elongated portion **430** securing the urine collection device **400** to the penis, urine discharged from the penis may be withdrawn from the urine collection device **400**. When urine is discharged from the urethra of the penis, the fluid permeable body **430** wicks the urine away from the urethra. The urine may be wicked to the reservoir **420**, before being pulled from the reservoir **420** by a conduit secured to the neck **415**. The configuration of the urine collection device **400** may prevent urinary tract infections associated with internal catheters, while also preventing dermatitis associated with adult diapers.

FIG. **5** is a block diagram of a fluid collection system **10**, according to an embodiment. The fluid collection system **10** may be included in embodiments of fluid collection systems described herein. The system **10** includes a fluid (e.g., urine) collection device **12** (e.g., any of the fluid collection device disclosed herein), a urine collection container **14**, and a pump **16** (or vacuum source). The fluid collection device **10**, the urine collection container **14**, and the pump **16** may be fluidly coupled to each other via one or more conduits **17**. For example, fluid collection device **10** may be operably coupled to one or more of the urine collection container **14** or the pump **16** via the conduit **17**. In some embodiments, the pump **16** may be secured directly to the urine collection container **14**. Fluid (e.g., urine or other bodily fluids) collected in the fluid collection device **10** may be removed from the fluid collection device **10** via the conduit **17** secured to the fluid collection device **12**. Suction force may be introduced into the chamber of the fluid collection device **12** via the inlet of the conduit **17** responsive to suction (e.g., vacuum) force applied at the outlet of the conduit **17**.

The suction force may be applied to the outlet of the conduit **17** by the pump **16** either directly or indirectly. The suction force may be applied indirectly via the urine col-

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lection container **14**. For example, the outlet of the conduit **17** may be disposed within or fluidly coupled to an interior region of the urine collection container **14** and an additional conduit **17** may extend from the urine collection container **14** to the pump **16**. Accordingly, the pump **16** may apply suction to the fluid collection device **12** via the urine collection container **14**. The suction force may be applied directly via the pump **16**. For example, the outlet of the conduit **17** may be disposed within the pump **16**. An additional conduit **17** may extend from the pump **16** to a point outside of the fluid collection device **12**, such as to the urine collection container **14**. In such examples, the pump **16** may be disposed between the fluid collection device **12** and the urine collection container **14**.

The urine collection container **14** is sized and shaped to retain a fluid therein. The urine collection container **14** may include a bag (e.g., drainage bag), a bottle or cup (e.g., collection jar), or any other enclosed container for storing bodily fluid(s) such as urine. In some examples, the conduit **17** may extend from the fluid collection device **12** and attach to the urine collection container **14** at a first point therein. An additional conduit **17** may attach to the urine collection container **14** at a second point thereon and may extend and attach to the pump **16**. Accordingly, a vacuum (e.g., suction) may be drawn through fluid collection device **12** via the urine collection container **14**. Fluid, such as urine, may be drained from the fluid collection device **12** using the pump **16**.

The pump **16** or vacuum source may include one or more of a manual vacuum pump, and electric vacuum pump, a diaphragm pump, a centrifugal pump, a displacement pump, a magnetically driven pump, a peristaltic pump, or any pump configured to produce a vacuum. The pump **16** may provide a vacuum or suction to remove fluid from the fluid collection device **12**. In some examples, the pump **16** may be powered by one or more of a power cord (e.g., connected to a power socket), one or more batteries, or even manual power (e.g., a hand operated vacuum pump). In some examples, the pump **16** may be sized and shaped to fit outside of, on, or within the fluid collection device **12**. For example, the pump **16** may include one or more miniaturized pumps or one or more micro pumps. The vacuum sources disclosed herein may include one or more of a switch, a button, a plug, a remote, or any other device suitable to activate the pump **16**.

FIG. **6** is a flow diagram of a method **600** for collecting urine, according to an embodiment. The method **600** includes an act **610** of positioning a fluid permeable body of a urine collection device at least proximate to a urethra of a user. The fluid permeable body may extend at least partially across an opening defined by a fluid impermeable barrier of the urine collection device. The urine collection device may include any of the urine collection device described herein. The method **600** also includes an act **620** of receiving fluids discharged from the urethra into a reservoir void of material of the urine collection device. The reservoir may be at least partially defined by a portion of the fluid permeable body and a portion of the fluid impermeable barrier. The method **600** also includes an act **630** of promoting urine from the reservoir through a conduit fluidly coupled to the reservoir.

In some embodiments, the act **610** of positioning a fluid permeable body of a urine collection device at least proximate to a urethra of a user includes positioning a substantially planar or concave surface of the fluid permeable body extending across an opening of the fluid impermeable barrier at least proximate to the urethra of the user. The method **600** also may include an act of positioning a waist belt around a waist of the user, the waist belt being secured to the fluid

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impermeable barrier of the urine collection device and the urine collection device having an arched elongated portion.

In some embodiments, the act **610** of positioning a fluid permeable body of a urine collection device at least proximate to a urethra of a user includes inserting at least a head of a penis of the user into a pocket positioned on or adjacent to the fluid permeable body to extend from a portion of the opening of the fluid impermeable barrier towards the reservoir. Inserting at least a head of a penis of the user into a pocket positioned on or adjacent to the fluid permeable body may include inserting at least the head of the penis of the user into a pocket extending into a recess formed in the fluid permeable body. Inserting at least a head of a penis of the user into a pocket positioned on or adjacent to the fluid permeable body may include inserting at least the head of the penis of the user into the pocket at least partially defined by a material extending across a portion of the opening that holds at least the head of the penis between the material and the fluid permeable body. The method **600** also may include an act of positioning a scrotum of the user between two elongated portions of the fluid impermeable barrier.

In some embodiments, the act **610** of positioning a fluid permeable body of a urine collection device at least proximate to a urethra of a user may include inserting at least a head of a penis into a receptacle of the urine collection device with at least a portion of an inner surface of the receptacle contacting the head of the penis and at least a portion of the fluid permeable body at least partially defining the receptacle. Inserting at least a head of a penis into a receptacle of the urine collection device may include inserting the head of the penis into frustoconical region of the fluid impermeable barrier at least partially defining the receptacle and inserting a shaft of the penis into a sheath of the fluid impermeable barrier connected to the frustoconical region of the fluid impermeable barrier, the sheath securing the urine collection device to the penis. In some embodiments, the method **600** also includes an act of connecting the conduit to a port on the urine collection device, the reservoir being positioned between the port and the fluid permeable body.

The acts of the method **600** described above are for illustrative purposes. For example, the acts of the method **600** can be performed in different orders, split into multiple acts, modified, supplemented, or combined. In an embodiment, one or more of the acts of the method **600** can be omitted from the method **600**. Any of the acts of the method **600** can include using any of the urine collection systems disclosed herein.

As used herein, the term “about” or “substantially” refers to an allowable variance of the term modified by “about” or “substantially” by  $\pm 10\%$  or  $\pm 5\%$ . Further, the terms “less than,” “or less,” “greater than,” “more than,” or “or more” include, as an endpoint, the value that is modified by the terms “less than,” “or less,” “greater than,” “more than,” or “or more.”

While various aspects and embodiments have been disclosed herein, other aspects and embodiments are contemplated. The various aspects and embodiments disclosed herein are for purposes of illustration and are not intended to be limiting.

What is claimed is:

1. A urine collection device, comprising:
  - a fluid impermeable barrier at least partially defining a chamber, the fluid impermeable barrier including:
    - at least one elongated portion having a first width and a first axial length; and
    - a second portion having a second width greater than the first width and a second axial length that is equal to

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or less than the first axial length, the second portion defining an aperture distal to the at least one elongated portion and an opening having a maximum lateral dimension greater than the first width;

a fluid permeable body positioned at least partially within the chamber to extend across at least a portion of the opening and into at least a portion of the at least one elongated portion of the fluid impermeable body, the fluid permeable body configured to wick fluid away from the opening into the at least one elongated portion; and

a conduit extending through the aperture, the second portion, and at least partially into the at least one elongated portion of the fluid impermeable barrier.

2. The urine collection device of claim 1, wherein the first width of the at least one elongated portion is substantially constant along first axial length and the second width of the second portion is at least 1.5 times greater than the first width.

3. The urine collection device of claim 1, wherein the maximum lateral dimension is at least 1.5 times greater than the first width.

4. The urine collection device of claim 1, wherein the at least one elongated portion is generally tubular.

5. The urine collection device of claim 1, wherein the first axial length of the elongated portion is greater than the second axial length of the second portion.

6. The urine collection device of claim 1, wherein the fluid permeable body includes at least one elongated portion positioned within the at least one elongated portion of the fluid impermeable barrier and a substantially planar or concave surface extending across the opening.

7. The urine collection device of claim 1, further comprising a reservoir void of material positioned at a distal end of the at least one elongated portion, the reservoir being at least partially defined by a portion of the fluid impermeable barrier and a portion of the fluid permeable body, wherein the conduit is in fluid communication with the reservoir.

8. The urine collection device of claim 1, further comprising a waist belt secured to the fluid impermeable barrier proximate to the aperture of the fluid impermeable barrier.

9. The urine collection device of claim 8, wherein at least the elongated portion of the fluid impermeable barrier is arched.

10. The urine collection device of claim 9, wherein the elongated portion and the second portion of the fluid impermeable barrier form an arch.

11. The urine collection device of claim 1, further comprising a penis pocket, the penis pocket being positioned on or adjacent to the fluid permeable body to extend from a portion of the opening of the fluid impermeable barrier towards the elongated portion.

12. The urine collection device of claim 11, wherein the penis pocket includes a recess formed in fluid permeable body.

13. The urine collection device of claim 11, wherein: the opening includes a portion extending from the second portion of the fluid impermeable barrier towards the at least one elongated portion of the fluid impermeable barrier, the portion of the opening having a width that is less than the maximum lateral dimension of the opening; and

the urine collection device includes a material across the portion of the opening defining at least a portion of the penis pocket.

14. The urine collection device of claim 13, wherein the material across the portion of the opening includes a mesh

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material and a fluid impermeable layer is positioned between a portion the head of the penis and the fluid permeable body, the fluid impermeable layer including a hole allowing fluid communication between the pocket and the fluid permeable body.

15. The urine collection device of claim 1, wherein:

the at least one elongated portion includes a first elongated portion and a second elongated portion angled relative to the first elongated portion;

the conduit includes a first distal end positioned in the first elongated portion and a second distal end positioned in the second elongated portion.

16. The urine collection device of claim 15, wherein the first elongated portion and the second elongated portion are angled to form a V-shaped configuration.

17. A urine collection device, comprising:

a receptacle sized to receive a head of a penis therein with at least a portion of an inner surface of the receptacle contacting the head of the penis;

a fluid permeable body defining at least a portion of the receptacle, the fluid permeable body configured to wick fluid away from the receptacle for removal from the urine collection device;

a fluid impermeable barrier at least partially defining a chamber and including at least one elongated portion and a second portion, the second portion defining an opening and an aperture spaced from the at least one elongated region, wherein the elongated portion is equal or longer in axial length than the second portion; and

a conduit extending through the aperture, the second portion, and at least partially into the at least one elongated portion of the fluid impermeable barrier.

18. The urine collection device of claim 17, wherein:

the fluid permeable body is positioned at least partially within the chamber to extend across at least a portion of the opening and into at least a portion of the at least one elongated portion of the fluid impermeable body, the fluid permeable body configured to wick fluid away from the opening and the receptacle into the at least one elongated portion; and

the receptacle includes a recess in the fluid permeable body, the recess being positioned on the fluid permeable body to extend inward from a portion of the opening of the fluid impermeable barrier.

19. The urine collection device of claim 18, wherein:

the opening includes a portion extending from the second portion of the fluid impermeable barrier towards the at least one elongated portion of the fluid impermeable barrier; and

the urine collection device includes a material across the portion of the opening defining at least a portion of a pocket.

20. The urine collection device of claim 19, wherein the material across the portion of the opening includes a mesh material.

21. The urine collection device of claim 18, further comprising a conduit extending through the aperture, through the second portion, and at least partially into the at least one elongated portion of the fluid impermeable barrier.

22. The urine collection device of claim 21, further comprising a reservoir void of material positioned at a distal end of the at least one elongated portion, the reservoir being at least partially defined by a portion of the fluid impermeable barrier and a portion of the fluid permeable body, wherein the conduit is in fluid communication with the reservoir.

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23. The urine collection device of claim 21, wherein:

the at least one elongated portion includes a first elongated portion and a second elongated portion angled relative to the first elongated portion;

the conduit includes a first distal end positioned in the first elongated portion and a second distal end positioned in the second elongated portion.

24. The urine collection device of claim 23, wherein the first elongated portion and the second elongated portion are angled to form a V-shaped configuration.

25. A method of collecting urine, the method comprising: positioning a fluid permeable body of a urine collection device at least proximate to a urethra of a user, the fluid permeable body extending at least partially across an opening defined by a fluid impermeable barrier of the urine collection device, wherein:

the fluid impermeable barrier at least partially defines a chamber, the fluid impermeable barrier including an elongated portion having a first width and a second portion having a second width greater than the first width, the second portion defining the opening and an aperture distal to the at least one elongated portion, and the opening having a maximum lateral dimension greater than the first width, wherein the elongated portion is equal or longer in axial length than the second portion;

the fluid permeable body is positioned at least partially within the chamber to extend across at least a portion of the opening and into at least a portion of the at least one elongated portion of the fluid impermeable body, the fluid permeable body configured to wick fluid away from the opening into the at least one elongated portion; and

a conduit extending through the aperture, the second portion, and at least partially into the elongated portion of the fluid impermeable barrier;

receiving fluids discharged from the urethra into a region of the elongated portion of the fluid impermeable barrier distal to the second portion; and

promoting urine from the reservoir through a conduit fluidly coupled to the region of the elongated portion and extending through the aperture, the second portion, and at least partially into the elongated portion of the fluid impermeable barrier.

26. The method of claim 25, wherein positioning a fluid permeable body of a urine collection device at least proximate to a urethra of a user includes positioning a substantially planar or concave surface of the fluid permeable body extending across an opening of the fluid impermeable barrier at least proximate to the urethra of the user.

27. The method of claim 25, further comprising positioning a waist belt around a waist of the user, the waist belt being secured to the fluid impermeable barrier of the urine collection device and the urine collection device having an arched elongated portion.

28. The method of claim 25, wherein positioning a fluid permeable body of a urine collection device at least proximate to a urethra of a user includes inserting at least a head of a penis of the user into a pocket positioned on or adjacent to the fluid permeable body to extend from a portion of the opening of the fluid impermeable barrier towards the reservoir.

29. The method of claim 28, wherein inserting at least a head of a penis of the user into a pocket positioned on or adjacent to the fluid permeable body includes inserting at least the head of the penis of the user into a pocket extending into a recess formed in the fluid permeable body.

**30.** The method of claim **28**, wherein inserting at least a head of a penis of the user into a pocket positioned on or adjacent to the fluid permeable body includes inserting at least the head of the penis of the user into the pocket at least partially defined by a material extending across a portion of the opening that holds at least the head of the penis between the material and the fluid permeable body. 5

**31.** The method of claim **30**, further comprising positioning a scrotum of the user between the elongated portion and an additional elongated portion of the fluid impermeable barrier. 10

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